I claim:

1. A layer jump control device of a high-speed optical drive for controlling the layer jump process of said optical drive, said device comprising:

    a low-pass filter used to receive a focusing control signal and output

5   low-frequency components of said focusing control signal;

    a real-time wobble detector connected to said low-pass filter and used to detect and renew the magnitude of wobble in each wobble period and output a peak value and a bottom value of wobble; and

    an adaptive layer distance balancing calculator connected to said real-time

10   wobble detector and used to determine a layer jump start position and output a layer distance balancing signal.

2. The layer jump control device of high-speed optical drive as claimed in claim 1 further comprising:

    a pick-up head having a lens and a voice coil motor, said pick-up head

15   driving said voice coil motor to vertically move said lens according to a driving control force;

    a preamplifier used to produce a focusing error signal;

    a controller used to receive said focusing error signal and produce said focusing control signal; and

20   a driver used to output said driving control force.

3. The layer jump control device of high-speed optical drive as claimed in claim 1, wherein said layer jump start position is a gradual position of wobble period near said peak value.

4. The layer jump control device of high-speed optical drive as claimed in

25   claim 3, wherein said gradual position is three fourths of said peak value.

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5. The layer jump control device of high-speed optical drive as claimed in claim 1, wherein said layer jump start position is a gradual position of wobble period near said bottom value.

6. The layer jump control device of high-speed optical drive as claimed in claim 5, wherein said gradual position is three fourths of said bottom value.

7. The layer jump control device of high-speed optical drive as claimed in claim 1, wherein said optical drive is a DVD drive.

8. A layer jump control device of high-speed optical drive for controlling the layer jump process of an optical drive, said device comprising:

a low-pass filter used to receive a focusing control signal and output low-frequency components of said focusing control signal;

a real-time wobble detector connected to said low-pass filter and used to detect and renew the magnitude of wobble in each wobble period and output a peak value and a bottom value of wobble;

an adaptive layer distance balancing calculator connected to said real-time wobble detector and used to determine a layer jump start position and output a layer distance balancing signal;

a pick-up head having a lens and a voice coil motor, said pick-up head driving said voice coil motor to vertically move said lens according to a driving control force;

a preamplifier used to produce a focusing error signal;

a controller used to receive said focusing error signal and produce said focusing control signal; and

a driver used to output said driving control force.

9. The layer jump control device of high-speed optical drive as claimed in

claim 8, wherein said layer jump start position is a gradual position of wobble period near said peak value.

10. The layer jump control device of high-speed optical drive as claimed in claim 9, wherein said gradual position is three fourths of said peak value.

11. The layer jump control device of high-speed optical drive as claimed in claim 8, wherein said layer jump start position is a gradual position of wobble period near said bottom value.

12. The layer jump control device of high-speed optical drive as claimed in claim 11, wherein said gradual position is three fourths of said bottom value.

13. The layer jump control device of high-speed optical drive as claimed in claim 8, wherein said optical drive is a DVD drive.

14. A layer jump control method of a high-speed optical drive, said optical drive comprising a low-pass filter, a real-time wobble detector, an adaptive layer distance balancing calculator, an pick-up head, a preamplifier and a controller, said method comprising the steps of:

using said real-time wobble detector to continually detect and renew the magnitude of wobble in each wobble period before layer jump and then output a peak value and a bottom value of wobble;

determining whether the magnitude of wobble is larger than a set value when layer jump begins;

using a layer distance balancing signal to perform a layer jump process;

using the output of said low-pass filter as said layer distance balancing signal if the magnitude of wobble is not larger than said set value; and

using said adaptive layer distance balancing calculator to determine a layer jump start position and output said layer distance balancing signal if the

magnitude of wobble is larger than said set value.

15. The layer jump control method of a high-speed optical drive as claimed in claim 14, wherein said optical drive is a DVD drive.

16. The layer jump control method of a high-speed optical drive as claimed in claim 14, wherein said layer jump start position is a gradual position of wobble period near said peak value.

17. The layer jump control method of a high-speed optical drive as claimed in claim 16, wherein said gradual position is three fourths of said peak value.

18. The layer jump control method of a high-speed optical drive as claimed in claim 14, wherein said layer jump start position is a gradual position of wobble period near said bottom value.

19. The layer jump control method of a high-speed optical drive as claimed in claim 18, wherein said gradual position is three fourths of said bottom value.

20. The layer jump control method of a high-speed optical drive as claimed in claim 14 further comprising the steps of:

using said controller to receive a focusing error signal produced by said preamplifier to produce a focusing control signal; and

transmitting said focusing control signal to said low-pass filter.

21. The layer jump control method of a high-speed optical drive as claimed in claim 14, wherein said layer jump process further comprising the steps of:

producing a kicking process according to a kicking signal and said layer distance balancing signal;

producing a holding process according to said layer distance balancing signal;

producing a braking process according to a braking signal and said layer

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distance balancing signal; and

producing a waiting process according to said layer distance balancing signal.